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EXAMINER

TRAN, TUYETLIEN T

ART UNIT	PAPER NUMBER
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2179

MAIL DATE	DELIVERY MODE
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05/11/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/623,518

Applicant(s)

NAGANO ET AL.

Examiner

TuyetLien (Lien) T. Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 March 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 3-15 and 31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-15 and 31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is responsive to the following communication: Amendment filed 03/02/07.

This action is made final.

2. Claims 1, 3-15 and 31 are pending in the case. Claims 1 and 5 are independent claims. Claim 31 is new claims. Claims 1 and 5 are the amended claims.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. **Claims 3-4, 6-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

Claims 3-4 recite the limitation "the network interactive display device". There is insufficient antecedent basis for this limitation in the claims.

Claims 6-15 recite the limitation "a network interactive display device according to". There is insufficient antecedent basis for this limitation in the claims.

Note: this new ground of rejection is necessitated by the amendment.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1, 3-4, 5, 7-9, 12, 14-15 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shigeta (Pub No US 2001/0050679 A1; hereinafter Shigeta).

As to claim 1, Shigeta teaches:

A display system (e.g., a display control system, see [0002]) comprising:

a plurality of terminals (e.g., image signal source 1a to 1c, see Fig. 1; note that the image signal sources can be personal computers, see col. [0064]), each terminal having a screen capture function (e.g., graphics drawing unit 6a, 6b, see Fig. 2), and sending image data, captured using the screen capture function (e.g., image signals are sent from the image/audio transmitting unit 9a, 9b, see Fig. 2 and [0075]), over a network (e.g., devices such as 113 and 110 are communicated to each other through a 1394 hub 108, see Fig. 10); and

a display device (e.g., image display device 30, see Fig. 1), including a display (e.g., image display unit 36, see Fig. 1), receiving the captured image data transmitted from the terminal (e.g., receiving image signals sent from units 9a and 9b, see [0075] and Fig. 2) through the network (e.g., communication line 24, see Fig. 1), and having a multi-window screen presentation function (e.g., see Fig. 6) for synthesizing the captured image data into single screen multi-window format data to be displayed on a display screen of the display (e.g., see [0087]),

wherein, as processes required to present the single screen multi-window format data on the display screen of the display of the network interactive display device (e.g., see [0006] and

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[0135]), the terminal performs a size conversion process of an image size of the image data captured using the screen capture function (e.g., see [0102]) characterized in that the display device receives terminal information including a screen size of a terminal display from each terminal (e.g., see Figs. 7-8 and [104]-[106]), divides the display screen of the display into windows of the number equal to the number of terminals to be displayed (e.g., the display screen F1 is divided into 3 display areas F2, F3, F4 to display images coming from PC1, PC2, DVD, see Fig. 6 and Fig. 7), determines a display size of the window assigned to each terminal to be displayed on the basis of the received screen size (e.g., see Fig. 7; note that display device sends different attributes information according to its source device, see [0101]), and sends information of the display size to the terminal (e.g., step S2 in Fig. 3), the terminal performs the size conversion process on the image size of the captured image data to the received display size when the terminal receives the display size (e.g., see [0102]), and the display device acquires the captured image data subsequent to the size conversion thereof from the terminal, and synthesizes the received captured image data (e.g., see [0087] and [0123]).

Shigeta does not expressly teach that the display device is a projector; however, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have implemented the multi-screen display function on a projector because Shigeta suggests to the skilled artisan that the multi-screen display functions implemented on the display device can be used for a projector (e.g., see Shigeta [0006]) to obtain the ability to display images of different image signal sources using a projector.

As to claim 5, Shigeta teaches:

A display device (e.g., image display device 30, see Fig. 1) connected through a network (e.g., devices such as 113 and 110 are communicated to each other through a 1394 hub 108, see Fig. 10) to a plurality of terminals (e.g., image signal source 1a to 1c, see Fig. 1; note that

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the image signal sources can be personal computers, see col. [0064]) each of which has a terminal display (e.g., PC display_A 403, PC display_B 409 in Fig. 14) and a screen capture processor for capturing a whole or a part of the screen of the terminal display (e.g., graphics drawing unit 6a, 6b, see Fig. 2) and sends captured image data acquired in the screen capture processor (e.g., image signals are sent from the image/audio transmitting unit 9a, 9b, see Fig. 2 and [0075]), the display device (e.g., device 30) comprising:

- a display (e.g., image display unit 36, see Fig. 1);

- a communication unit for communicating in a two-way fashion with each of the terminals (e.g., communication unit 40 and Image/audio receiving unit 32, see Fig. 1; note that device 30 can transmit and receive signal, e.g., see step S2 and S5 in Fig. 3), capable of receiving the captured image data which are captured and converted into a predetermined image size by each of the terminals (e.g., see [0087] and [0123]);

- a display control unit (e.g., image display processing unit 35, see Fig. 1),

- wherein the communication unit including a window area information generator for dividing the display screen of the display into windows of a number equal to the number of the terminals to be displayed (e.g., the display screen F1 is divided into 3 display areas F2, F3, F4 to display images coming from PC1, PC2, DVD, see Fig. 6 and Fig. 7) and determining a display size of a window assigned to each of the terminals in accordance with a screen size of the terminal display received from each of the terminals (e.g., resolution for each device PC1, PC2, DVD, see Fig. 7), an image synthesizer for synthesizing the captured image data received from each of the terminals in accordance with window area information generated by the window area information generator so as to generate synthesized image data (e.g., see Fig. 6), and an image processor for displaying the synthesized image data generated by the image synthesizer, on the display (e.g., see [0087] and [0123]); and

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a controller for sending the display size determined by the window area information generator to each of the terminals via the communication unit (e.g., step S2 in Fig. 3), wherein, through the communication unit, the controller receives the captured image data having the converted size equal to the display size of the window assigned to the terminal display device, from the terminal to which the display size have been sent (e.g., see [0102]), and controls the display control unit to synthesize the received captured image data into single screen multi-window format data to be displayed on the display screen of the display (e.g., see Fig. 6).

Shigeta does not expressly teach that the display device is a projector; however, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have implemented the multi-screen display function on a projector for the same reasons as discussed with respect to claim 1 above.

As to claim 3, Shigeta further teaches wherein, in addition to the size conversion process on the image data captured using the screen capture function (e.g., see [0102]), the terminal further performs a color conversion process on the captured image data in accordance with a color count of the display of the network interactive display device before sending the captured image data to the network interactive display device] (e.g., the image signal sources converts image data to display attribute format such as color properties, a number of gradients, 8-bit gradients, see [0090], [0091], and [0101]).

As to claim 4, Shigeta further teaches wherein the network interactive display device (e.g., image display device 30, see Fig. 1) also sends the color count of own display to the terminal when sending the display size to the terminal (e.g., display attributes information sent from display device including a number of gradients, color properties, see [0090] and [0091]),

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while the terminal performs the color conversion process in response to the color count received from the network interactive display device (e.g., [0090] and [0102]).

As to claim 31, Shigeta further teaches wherein when the captured image data captured using the capture function are of a part of the screen of the terminal display (e.g., see 12a, 12b in Fig. 2), a partial size of the part is sent from the terminal to the projector and the display size of the window assigned to the terminal is determined on the basis of the partial size instead of the received screen size of the terminal display (e.g., see Fig. 6 and [0102]).

As to claim 7, Shigeta further teaches wherein the terminal that provides the captured image data to be displayed on the display screen of the display is selected in a two-way communication of the communication unit (e.g., communication unit 40 and Image/audio receiving unit 32, see Fig. 1; note that device 30 can transmit and receive signal, e.g., see step S2 and S5 in Fig. 3) by one of the network interactive display device and the terminal (e.g., a mouse or digitizer, see [0089]).

As to claim 8, Shigeta further teaches wherein the display control unit has an expansion display function for expanding a predetermined window from among a plurality of windows forming a multi-window screen displayed on the display screen of the display (e.g., see Fig. 8).

As to claim 9, Shigeta teaches the limitations of claim 5 for the same reasons as discussed with respect to claim 5 above. Shigeta fails to expressly teach a single-window screen selection function for switching the display screen from a predetermined window from among a plurality of windows forming a multi-window screen displayed on the display screen of the display to a single-window full screen. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the a single-window

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function for switching the display screen from a predetermined window from among a plurality of windows forming a multi-window screen displayed on the display screen of the display to a single-window full screen, in view of Shigeta, because Shigeta suggests to the skilled artisan that the size and position of the display area can be changed (e.g., see [0089]) to optimize the full resource of the display and to get user's attention on the window of interest.

As to claim 12, Shigeta further teaches wherein the image captured data received from the terminal is obtained by designating the whole or a portion of the display screen of the terminal (e.g., see Fig 6).

As to claim 14, Shigeta teaches further comprising a display size determining unit that divides the display screen of the display into windows of the number equal to the number of terminals to be displayed (e.g., the display screen F1 is divided into 3 display areas F2, F3, F4 to display images coming from PC1, PC2, DVD, see Fig. 6 and Fig. 7, [0006] and [0135]), and determines a display size of the window to which the terminal to be displayed is assigned (e.g., resolution for each device PC1, PC2, DVD, see Fig. 7), and a controller that sends the display size determined by the display size determining unit to the corresponding terminal (e.g., step S2 in Fig. 3) through the communication unit (e.g., communication unit 40 and Image/audio receiving unit 32, see Fig. 1), wherein the controller receives, through the communication unit (e.g., unit 40 and 32 in Fig 1), the captured image data, having the converted size equal to the display size of the window assigned to the terminal, from the terminal to which the display size is sent (e.g., see [0102]), and controls the display control unit to synthesize the received captured image data into single screen multi-window format data to be displayed on the display screen of the display (e.g., see [0087]).

As to claim 15, Shigeta further teaches wherein an aspect ratio of the window assigned to the terminal to be displayed is equalized to an aspect ratio of the display screen of the display of the terminal (e.g., note that display attributes for each area also relates to aspect ratio, see [0090] and [0091]).

7. Claims 6 and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shigeta in view of Matsumoto et al. (Patent No US 6,473,088 B1, hereinafter Matsumoto).

As to claim 6, Shigeta teaches the limitations of claim 5 for the same reasons as discussed with respect to claim 5 above. However, Shigeta fails to expressly teach an insertion function for inserting a new window into a currently display screen to display the new window. Matsumoto, though, teaches wherein the display control unit (e.g., display drive controller 900 in Fig. 1) has an insertion function for inserting a new window into a current display screen to display the new window (e.g., icon I1, I2 allow a new window to be displayed on a currently display screen, see Fig. 11 and col. 11, lines 30-58).

It would have been obvious to one of ordinary skill in the art, having the teachings of Shigeta and Matsumoto before him at the time the invention was made to have utilized the insertion function as taught by Matsumoto to the multi-area display system as taught by Shigeta so that when an erased or minimized windows are desired to be inserted into a currently display screen, the desired windows can be opened without having to restart the display system.

As to claim 10, Shigeta teaches the limitations of claim 5 for the same reasons as discussed with respect to claim 5 above. However, Shigeta fails to expressly teach an erase function for erasing a predetermined window from among a plurality of windows forming a multi-window screen displayed on the display screen of the display. Matsumoto, though, teaches

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wherein the display control unit (e.g., display drive controller 900 in Fig. 1) has an erase function for erasing a predetermined window from among a plurality of windows forming a multi-window screen displayed on the display screen of the display (e.g., window area for input 4 is erased or minimized when the control unit detects a power saving mode, see Fig. 13 and col. 12, lines 63-67).

It would have been obvious to one of ordinary skill in the art, having the teachings of Shigeta and Matsumoto before him at the time the invention was made to have utilized the erase function as taught by Matsumoto to the multi-area display system as taught by Shigeta to improve the visibility of the display screen by erasing the display area of invalidating windows.

As to claim 11, Shigeta and Matsumoto teach the limitations of claim 10 for the same reasons as discussed with respect to claim 10 above. Matsumoto further teaches wherein the predetermined window is selected by one of the network interactive display device and the terminal (e.g., display pointer 702) in a two-way communication of the communication unit (e.g., two-way communication between source devices 101 to 104 and bus controller 1000 to the display device 900, see Fig. 1) thereof. Thus, combining Shigeta and Matsumoto would meet the claimed limitations for the same reasons as discussed in claim 10 above.

8. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shigeta in view of Mondal (Pub No US 2003/0110244 A1, hereinafter Mondal).

As to claim 13, Shigeta teaches the limitations of claim 5 for the same reasons as discussed with respect to claim 5 above. However, Shigeta fails to expressly teach that the captured image data received from the terminal is obtained by detecting and capturing only a change on the display screen of the terminal. Mondal, though, teaches the captured image data

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received from the terminal is obtained by detecting and capturing only a change on the display screen of the terminal (e.g., see [0022]).

It would have been obvious to one of ordinary skill in the art, having the teachings of Shigeta and Mondal before him at the time the invention was made to have utilized the method and function of only transmitting the changes in display data as taught by Mondal to the multi-area display system as taught by Shigeta to reduce the amount of data transmitted to the maintenance computing system so as to reduce the affect on network bandwidth (e.g., see Mondal [0022]).

Response to Arguments

9. Applicant's arguments with respect to claims 1, 3-15 and 31 have been considered but are moot in view of the new ground(s) of rejection.

Applicants argue that the prior art of Shigeta does not teach a projector that receives terminal information including a screen size of a terminal display from each terminal and determines that the display size of the window assigned to each terminal on the basis of the received screen size (e.g., see Remark page 7, Para 3).

Examiner disagrees

Shigeta teaches that a display device having a multi-screen display function that is capable of displaying images of different signal sources (e.g., see Fig. 1 and Fig. 6); wherein the display device receives terminal information including a screen size of a terminal display from each terminal and determines that the display size of the window assigned to each terminal on the basis of the received screen size (e.g., see Fig. 7; note that display device sends different attributes information according to its source device, see [0101]; further note that the size of the

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window assigned to each terminal are different according to its original size, see Fig. 7, [0104]-[0111]). The examiner agrees that Shigeta does not expressly teach that the display device is a projector; however, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have implemented the multi-screen display function on a projector because Shigeta suggests to the skilled artisan that the multi-screen display functions implemented on the display device can be used for a projector (e.g., see Shigeta [0006]) to obtain the ability to display images of different image signal sources using a projector

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

It is noted that any citation to specific, pages, columns, lines, or figures in the prior art references and any interpretation of the references should not be considered to be limiting in any way. A reference is relevant for all it contains and may be relied upon for all that it would have reasonably suggested to one having ordinary skill in the art. In re Heck, 699 F.2d 1331, 1332-33, 216 USPQ 1038, 1039 (Fed. Cir. 1983) (quoting In re Lemelson, 397 F.2d 1006, 1009, 158 USPQ 275, 277 (CCPA 1968)).

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to TuyetLien (Lien) T. Tran whose telephone number is 571-270-1033. The examiner can normally be reached on Mon-Friday: 7:30 - 5:00 (every other Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Weilun Lo can be reached on 571-272-4847. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

T.T
5/7/2007

Lien Tran
Examiner
Art Unit 2179

BA HUYNH
PRIMARY EXAMINER